No. 8

Proceedings

of

The Canadian Phytopathological Society

Eighth Session

June 28th to 29th, 1938

(CENTRAL EXPERIMENTAL FARM,
OTTAWA, ONT.)

EDITORIAL COMMITTEE

I. L. CONNERS

J. H. CRAIGIE T. C. VANTERPOOL

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COMMONWEALTH
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THE CANADIAN PHYTOPATHOLOGICAL SOCIETY

LIST OF OFFICERS AND COUNCIL 1937-38

President

I. L. CONNERS, Central Experimental Farm, Ottawa, Ont.

Vice-President

J. W. EASTHAM, Court House, Vancouver, B.C.

Secretary-Treasurer

L. W. KÖCH, Dominion Laboratory of Plant Pathology,
St. Catharines, Ont.

Councillors

J. G. COULSON, Macdonald College, Quebec
IRENE MOUNCE, Central Experimental Farm, Ottawa, Ont.

Minutes of the Eighth Annual Meeting Held at Ottawa, Ont., June 28th to 29th, 1938

BUSINESS SESSION

The President, I. L. Conners, called the meeting to order at 2:30 p.m. in a lecture room of Lisgar Collegiate Institute.

A synopsis of the minutes of the last annual meeting was read and the minutes were approved on the motion of L. W. Koch, seconded by H. R. McLarty. The Secretary-Treasurer's Report and Financial Statement were then read. It was moved by L. W. Koch and seconded by G. B. Sanford that the Report and Financial Statement be adopted. Carried. The President then briefly explained the organization of the present meeting and the integration of the programme with that of the American Phytopathological Society. The distribution to members of reprints of papers presented at the annual meetings and published subsequently was then discussed at some length.

It was moved by H. R. McLarty, seconded by J. H. Craigie, and carried, that the distribution of reprints of papers to members of the Society be discontinued.

There followed considerable discussion regarding the total membership of the Society and the possibility of obtaining new members.

Applications for membership from E. T. Howe, I. H. Crowell, and T. B. Lott were received and approved by Council. Moved by J. F. Hockey, seconded by F. J. Greaney that the three applicants be elected. Carried.

It was moved by H. R. McLarty, seconded by J. H. Craigie, and carried, that an honorarium of $15.00 be paid Miss Agnes Arnold for stenographic services during the past year.

It was moved by D. L. Bailey and seconded by H. R. McLarty that the names of the past Presidents of the Society appear on the annual nomination blanks. Carried.

It was moved by J. H. Craigie and seconded by H. R. McLarty that the personnel of the Editorial Committee, Committee on the Imperial Mycological Institute, and Common Names Committee remain the same for the current year. Carried.

(1) Editorial Committee: I. L. Conners, J. H. Craigie, and T. C. Vanterpool.

(2) Committee on the Imperial Mycological Institute: Irene Mounce, T. Johnson, and D. L. Bailey.

(3) Common Names Committee: I. L. Conners, J. G. Coulson, F. L. Godbout, A. W. Henry, H. N. Racicot, and Wm. Newton.

It was moved by G. B. Sanford and seconded by J. F. Hockey that a vote of thanks be extended to the retiring executive for their efforts on behalf of the Society.

SCIENTIFIC SESSIONS

The first session was devoted to a visit to the Division of Botany and Plant Pathology, Arboretum, Central Experimental Farm, where comprehensive summaries of research problems under investigation by various members of the Division throughout the Dominion were on exhibition. Exhibits consisted, in many cases, of charts, photographs, infected host materials, and cultures of causal organisms.

The second session was held jointly with the American Phytopathological Society at the Lisgar Collegiate Institute. Our President extended a cordial welcome to the members of the American Phytopathological Society on behalf of the Canadian Phytopathological Society. He voiced the debt we owe to the American Society in stimulating us to organize a Canadian Branch of the American Society, and afterwards in extending its blessing to the newly-formed Canadian Society. This meeting consisted of a symposium on root rots and seed-borne diseases and was well attended by members of both societies. Considerable discussion followed the presentation of each paper. Abstracts of these papers arranged alphabetically according to author are given below:

CHRISTENSEN, J. J. The role of infected seed in the development of seedling blight and root rot in cereals.

During 1932-37 numerous species of fungi were isolated from kernels of wheat and barley varieties grown at six localities in Minnesota. *Alternaria* spp. were by far the most prevalent, but *Helminthosporium* spp. and *Fusarium* spp. were the common virulent root-rotting organisms isolated. There were striking differences in the prevalence of fungi, especially in Helminthosporium and Fusarium, not only in different seasons but also in different localities in the same year. In certain years seed lots with 20-50 per cent infection were not uncommon. Over a period of six years, Helminthosporium and Fusarium were about equally prevalent on the 16 varieties of barley tested, although in certain seasons there were marked differences in varietal infection in a given locality. Helminthosporium was usually much more prevalent on durums than on the common wheats. Helminthosporium and Fusarium reduced the percentage of germination and caused root rot and seedling blight, while Alternaria was usually not injurious to seedlings. Treating the infected seed with New Improved Ceresan improved the stand, decreased seedling injury, increased plant vigor, and frequently increased yield. The improvement derived from the treatment was usually proportional to the intensity of Helminthosporium and Fusarium infection.

GREANEY, F. J. The soil microflora and other soil factors affecting the development of root rots in cereals.

An examination was made of the published work on root diseases of cereals, with especial reference to the influence of soil conditions on infection. The following conditions were discussed in considerable detail: (1) the soil microflora, (2) type of soil, (3) soil temperature and moisture, (4) soil aeration, (5) soil reaction, and (6) soil fertility. The whole subject was discussed in the light of observations and experiments made in Manitoba during the last fifteen years. Several phases of the subject are still in an incomplete and fragmentary condition and further research work is required.

PORTER, R. H. Relation of plant pathological technique to seed laboratory practice.

Three plant pathological techniques as they have been utilized in the Iowa State College Seed Laboratory were discussed, namely, (a) detection and identification of seed borne organisms of barley, corn, oats, and wheat; (b) effect of seed borne organisms on seed germination; and (c) response of seeds of barley, corn, flax, lima beans, oats, sorghum, and wheat to seed disinfectants in laboratory and field. The data presented showed that laboratory tests with treated and untreated seeds gave a reasonably reliable index of field response in that (a) lots most severely infected with seedling blight organisms as detected in laboratory soil gave poorer

field stands, (b) seed lots benefitted by treatment with ethyl mercury phosphate in laboratory tests were likewise benefitted in the field, and (c) increases in field stand as a result of seed treatment were usually accompanied by increase in yield. The techniques employed were shown to be applicable to seed laboratory practice.

SANFORD, G. B. The interrelation of organisms to root rot.

This paper was, in effect, a general discussion of the subject as related to root rots of cereals caused by *Helminthosporium sativum*, *Fusarium* spp., and *Ophiobolus graminis*, and common scab and stem canker of potato, as affected by different cropping practices, summer fallow, soil type, accessory growth products and toxic substances produced by other micro-organisms, the effect of sterilized and non-sterilized soil on virulence, and the greater persistence of certain pathogens than others in the soil. The limitations of some of the methods used to study the phenomena indicated were reviewed.

SCOTT, G. A. The incidence of pathogenic fungi in seeds.

An efficient method for the surface sterilization of certain seeds was developed. The disinfecting agent was a standardized solution of calcium hypochlorite containing two per cent available chlorine. The results of laboratory and greenhouse tests on some six hundred samples of high quality wheat, oats, and barley have shown that the seed in many samples carried a high percentage of parasitic fungi and that beneficial results were obtained by treating such seed with New Improved Ceresan (a mercury dust containing 5 per cent ethyl mercury phosphate). Proper treatment resulted in the suppression of seed-borne fungi and the production of more vigorous and healthy seedlings.

SIMMONDS, P. M. Root development in relation to root rots of cereals.

The investigations conducted on root rots of cereals in Saskatchewan, especially in relation to root growth, were used as a basis for certain interpretations on the reactions caused by these diseases. During the seedling period, wheat plants were shown to be supported entirely by the seminal or first roots. These roots are frequently attacked by fungi resulting in severe injury; this is particularly true for take-all caused by *Ophiobolus graminis* and browning root rot caused by *Pythium* spp. Infections by common root-rot fungi such as *Helminthosporium sativum* and *Fusarium* spp. were considered chiefly in respect to post-seedling invasions of the crown and subcrown zones.

REPORT OF THE SECRETARY-TREASURER

Mr. President,—

I beg to submit, herewith, the report of the Secretary-Treasurer for the year ending May 31, 1938.

The seventh annual meeting of the Society was held at the University of Saskatchewan, Saskatoon, Sask., June 28th to 30th, 1937. Three sessions were held, a part of each being devoted to business and the remainder to the presentation and discussion of papers. The first session dealt with rusts, the second with root rots, and the last one with seed treatment and miscellaneous subjects. In all, seventeen papers were presented.

On February 24, 1938, an executive meeting was held at the Division of Botany and Plant Pathology, Central Experimental Farm, Ottawa, primarily to discuss plans for the forthcoming annual meeting to be held at Ottawa jointly with the American Phytopathological Society. At this meeting it was decided by the

quorum present, consisting of Mr. I. L. Conners, Dr. Irene Mounce, and Dr. L. W. Koch, that in the event of probable expenditures in connection with the forthcoming annual meetings $50.00 be made available for this purpose. It was also decided at this meeting that no action be taken regarding former members of our Society who have failed to pay fees and whose names have, therefore, been dropped from the membership list.

Proceedings

The 1937 Proceedings contains the Minutes, etc., the titles and abstracts of papers presented at Saskatoon, and the titles of papers published by members of the Society from June 1, 1936 to May 31, 1937. Copies of these Proceedings were distributed to members of the Society at the end of November.

Election of Officers

Nomination ballots were sent out in March to be returned on or before April 2nd. A total of thirty-six ballots was returned. As a result, the following members were nominated: F. L. Drayton, W. F. Hanna, and H. R. McLarty for President; G. H. Berkeley, A. W. Henry, and G. B. Sanford for Vice-President; K. A. Harrison, L. W. Koch, and R. C. Russell for Secretary-Treasurer; E. Campagna, J. G. Coulson, and J. F. Hockey for Councillor. Electoral ballots were mailed in April to be returned on or before May 2.

Fifty-two ballots were returned, resulting in the election of Dr. H. R. McLarty as President, Dr. G. B. Sanford as Vice-President, Dr. L. W. Koch as Secretary-Treasurer, and Mr. J. F. Hockey as Councillor. Dr. A. A. Hildebrand, Dr. R. S. Willison, and Mr. G. C. Chamberlain acted as scrutineers.

Membership

On May 31st there were 74 members, of whom 10 had paid their fees in advance. Including the Honorary members, the membership is now 78 as compared with 83 last year. Under the present system of dropping from the membership list all names showing fees unpaid by May 31st, the list of members is always smallest for the subsequent month or two months because invariably some former members pay past-due fees at about the time of the annual meeting and by so doing require re-instatement.

During the past year three former members were reinstated, one new member was added to the roll and one application for membership in the Society was received. On May 31st it was necessary to remove nine names from the list of members though it is altogether likely that certain of these former members will request re-instatement.

Finances

As indicated by the attached financial statement, total revenue for the current year was $94.91, while the total expenditure amounted to $109.77, leaving a net balance of $666.37 at the end of the year. It will be noted from an examination of the statement that there was only one major item of expense, namely, $58.32 for printing of the Proceedings. Therefore, at the present time, and operating on the present basis, ordinary expenditure slightly exceeds the current revenue.

The Eighth (Ottawa) Meeting

The President has taken almost the entire responsibility of organizing the programme and integrating it with that of the American Phytopathological Society and the C.S.T.A.

Respectfully submitted,

L. W. Koch, *Secretary-Treasurer.*

FINANCIAL STATEMENT

CASH ACCOUNT
1937-38

REVENUE:			
Balance forward			$ 681.23
Fees: 1937, 61	$ 61.00		
1938, 9	9.00		
1939, 1	1.00		
Reinstated, 3	7.00	$ 78.00	
Sale of Proceedings	3.75		
Bank Interest	13.16		
		16.91	
			94.91
			$ 776.14
EXPENDITURE:			
Printing of 7th Proceedings	$ 58.32		
Stenographic Services (Honorarium)	15.00		
Reprints	16.80		
Exchange	1.05		
Stationery	1.60		
Stamps	17.00		
		109.77	
			109.77
Balance on hand, May 31, 1938			$ 666.37
OF THE BALANCE:			
On deposit			$ 666.30
In petty cash			.07

TITLES OF PAPERS PUBLISHED BY MEMBERS OF THE CANADIAN PHYTOPATHOLOGICAL SOCIETY

From June 1, 1937 to May 31, 1938

Berkeley, G. H. Garden diseases controlled by right methods. Can. Hort. & Home Mag. *60:* 179. 1937.

————————. Last year's fruit disease situation. Can. Hort. & Home Mag. (Fruit Ed.) *61:* 64. 1938.

————————. Diseases of tobacco and their control. Can. Hort. & Home Mag. (Fruit Ed.) *61:* 65. 1938.

————————. Leaf curl of geranium. Can. Hort. & Home Mag. (Floral Ed.) *61:* 108. 1938.

Black, L. M. A study of potato yellow dwarf in New York. Cornell Agr. Exp. Sta. Memoir 209: 1-23. 1937.

————————. Mechanical transmission and properties of the potato yellow dwarf virus. Phytopathology *28:* 3. 1938.

Broadfoot, W. C., and L. E. Tyner. Studies on foot and root rot of wheat. V. The relation of phosphorus, potassium, nitrogen, and calcium nutrition to the foot and root rot disease of wheat caused by *Helminthosporium sativum* P. K. and B. Can. Jour. Res. *16* (Sec. C)*:* 125-134. 1938.

————————. Snow mould of turf in Alberta. Jour. Board of Greenkeeping Res. *5:* 182-183. 1938.

Campagna, E. A. Observations preleminaires sur la rouille du pommier dans le Quebec. La Bonne Terre *19:* 13-31. 1937.

Chamberlain, G. C. Yellow blotch-curl: A new virus disease of the red raspberry in Ontario. Can. Jour. Res. *16* (Sec. C): 118-124. 1938.

————————. Reviewing last year's fruit disease situation. Can. Hort. & Home Mag. (Fruit Ed.) *61:* 5-6. 1938.

————————. Improved spray materials boon to orchardist. Can. Hort. & Home Mag. (Fruit Ed.) *61:* 25. 1938.

————————. Last year's fruit disease situation. Can. Hort. & Home Mag. (Fruit Ed.) *61:* 64. 1938.

Conners, I. L. Canadian Plant Disease Survey Annual Report 17 (1937): i-xi, 1-87. 1938. (Mimeographed).

Cormack, M. W. *Cylindrocarpon Ehrenbergi* Wr., and other species, as root parasites of alfalfa and sweet clover in Alberta. Can. Jour. Res. *15* (Sec. C): 403-424. 1937.

————————. *Fusarium* spp. as root parasites of alfalfa and sweet clover in Alberta. Can. Jour. Res. *15* (Sec. C): 493-510. 1937.

Craigie, J. H. Seed-borne diseases and their control. Can. Seed Growers' Association, Annual Report *1936-37:* 45-51. 1937.

Drayton, F. L. The perfect stage of *Botrytis convoluta*. Mycologia *29:* 305-318. 1937.

————————. Corm rots menace gladiolus plantings. Can. Hort. & Home Mag. (Floral Ed.) *60:* 277-279. 1937.

————————. The Botrytis blight or fire disease of tulips. Can. Hort. & Home Mag. (Floral Ed.) *60:* 297-298. 1937.

Folsom, Donald and Reiner Bonde. Some properties of potato roguse mosaic and its components. Jour. Agr. Res. *55:* 765-783. 1937.

————————, W. C. Libby, G. W. Simpson, and O. L. Wyman. Net necrosis of the potato. Maine Agr. Ext. Service Bul. 246. 12 pp. 1938.

Foster, W. R. and A. W. Henry. Overwintering of certain cereal pathogens in Alberta. Can. Jour. Res. *15* (Sec. C): 547-559. 1937.

FRASER, W. P., and R. C. RUSSELL. A list of the flowering plants, ferns, and fern allies of Saskatchewan. University of Saskatchewan, Saskatoon, Sask. pp. 1-46. 1937.

GREANEY, F. J. The effect of phosphate deficiencies on infection of wheat by *Fusarium culmorum*. Can. Jour. Res. *16* (Sec. C): 27-37. 1938.

————————, J. E. MACHACEK and C. L. JOHNSTON. Varietal resistance of wheat and oats to root rot caused by *Fuasrium culmorum* and *Helminthosporium sativum*. Sci. Agric. *18:* 500-523. 1938.

GROVES, J. W. The perfect stage of *Catinula turgida*. Mycologia *30:* 46-53. 1938.

————————. Additions to the Agaricaceae of the Ottawa district. Can. Field-Naturalist *52:* 57-60. 1938.

HANNA, W. F. The association of bunt with loose smut and ergot. Phytopathology *28:* 142-146. 1938.

HENRY, A. W., S. B. CLAY, and J. R. FRYER. Organic mercury fungicides and disease resistance in the control of slender wheat grass smut. Can. Jour. Res. *16* (Sec. C): 195-202. 1938.

HOCKEY, J. F. Comparison of spray materials in 1937. N.S. Fruit Growers' Association, Annual Report *74:* 73-78. 1938.

JENKINS, ANNA E., and L. M. MASSEY. Rose anthracnose. The Amer. Rose Annual *23:* 136-141. 1938.

JOHNSON, T., and M. NEWTON. The effect of high temperatures on uredial development in cereal rusts. Can. Jour. Res. *15* (Sec. C): 425-432. 1937.

————————. The origin of abnormal rust characteristics through the inbreeding of physiologic races of *Puccinia graminis tritici*. Can. Jour. Res. *16* (Sec. C): 38-52. 1938.

JONES, W. *Armillaria mellea* Vahl ex Fr. on raspberries in British Columbia. Sci. Agric. *17:* 752-753. 1937.

————————, and H. S. MACLEOD. Armillaria dry rot of potato tubers in British Columbia. Amer. Pot. Jour. *14:* 215-217. 1937.

KOCH, L. W. Bacterial diseases of tobacco in Canada. Lighter Vol. VII, No. 3, July, 1937. (Mimeographed).

MACHACEK, J. E., and F. J. GREANEY. The 'black point' or 'kernel smudge' disease of cereals. Can. Jour. Res. *16* (Sec. C): 84-113. 1938.

MASSEY, L. M. The 1937 disease control campaign—hot weather suggestions. Amer. Rose Magazine *2* (4): 54-55. 1937.

————————. The 1937 rose disease control campaign. Amer. Rose Magazine *2* (5): 72. 1937.

————————. Sprays and dusts—What shall I use during 1938? Amer. Rose Magazine *2* (7): 108-109. 1938.

————————. The campaign for disease control in 1938. Amer. Rose Magazine *2* (8): 126-127. 1938.

————————. Disease-control campaign ends. Amer. Rose Mag. *2* (9): 146. 1938.

————————, and E. W. LYLE. Control of stem and graft canker of the rose. Amer. Rose Annual *23:* 142-145. 1938.

MOSS, E. H. Longevity of seed and establishment of seedlings in species of Populus. Bot. Gaz. *99:* 529-542. 1938.

MOUNCE, IRENE, and H. A. C. JACKSON. Two Canadian collections of *Cantharellus multiplex*. Mycologia *29:* 286-288. 1937.

NEWTON, MARGARET. The cereal rusts of Canada. Empire Jour. Exp. Agric. *6*: 125-140. 1938.

————————, and T. JOHNSON. Production of uredia and telia of *Puccinia graminis* on *Berberis vulgaris*. Nature *139:* 800. 1937.

NOBLES, MILDRED K. First Canadian record of *Aleurodiscus subcruentatus*. Mycologia *29:* 387-391. 1937.

————————. Production of conidia by *Corticium incrustans*. Mycologia *29:* 557-566. 1937.

SAMUEL, G., and F. J. GREANEY. Some observations on the occurrence of *Fusarium culmorum* on wheat. Trans. Brit. Myc. Soc. *21:* 114-117. 1937.

SANFORD, G. B. Studies on *Rhizoctonia Solani* Kuhn. II. Effect on yield and disease of planting potato sets infested with sclerotia. Sci. Agric. *17:* 601-611. 1937.

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SIMMONDS, P. M. and R. J. LEDINGHAM. A study of the fungous flora of wheat roots. Sci. Agric. *18:* 49-59. 1937.

WHETZEL, H. H. Septotinia, a new genus of the Ciborioideae. Mycologia *29:* 128-146. 1937.

WHITE, W. LAWRENCE, and H. H. WHETZEL. Pleomorphic life cycles in a new genus of the Helotiaceae. Mycologia *30:* 187-203. 1938.

WILLISON, R. S. Peach canker investigations. III. Further notes on incidence, contributing factors, and related phenomena. Can. Jour. Res. *15* (Sec. C): 324-339. 1937.

YARWOOD, CECIL E. Unreported powdery mildew. Plant Dis. Reporter *21:* 180-182. 1937.

————————. Sulphur and rosin as downy mildew fungicides. Phytopathology *27:* 931-941. 1937.